

**REMARKS**

Claims 1-3, 5-6 are all the claims pending in the application.

Claims 1-3 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

Claims 1-3, 5 and 6 are rejected under 35 U.S.C. § 102(b) as being anticipated by Yamamoto et al. (JP 10-149210, hereinafter “Yamamoto”).

The Applicants traverse the rejections and request reconsideration.

***Claim Rejections - 35 U.S.C. § 112***

**Rejections of Claims 1-3 are, first paragraph.**

The Applicants respectfully reiterate the arguments made in support of their position in the Amendment dated November 9, 2010. In the Advisory Action dated November 18, 2010, the Examiner contends that the Applicants arguments referred to an equation that is not in the Specification and that that the Specification only provides no indication of how N was arrived at. The Examiner’s position is believed to be incorrect.

First, the Applicants did not use any equation to arrive at N that was not in the Specification. The claims themselves clearly recite a specific numerical limitation for the value of N. Notably, N is required by the claims to be an integer and that N is set to be equal to or greater than a value defined by subtracting an order of the command from an order of denominator of a transfer function of an approximation model that represents the controlled object with Laplace operator.

The Amendment of November 9, 2010, merely showed a numerical example of how the metes of the above limitation can be arrived at by a skilled artisan. As can be clearly seen, the

above limitation requires two numerical quantities, namely “order of the command” and “order of denominator of a transfer function.”

A skilled artisan would know that in the example of equation 5 of the Specification the transfer function is as follows:

$$XL = \frac{T_{ref}}{(J_1 + J_2) \cdot s^2 + (J_1 \cdot J_2 / K_2) \cdot s^4}$$

Further, in the above transfer function, a skilled artisan would know that the order of the denominator of the transfer function is 4.

Likewise, for a case in which a command cannot be differentiated (for example, a step function), a skilled artisan would know that the order of such a command is zero.

Therefore, subtracting 0 from 4 as required by the claim, a skilled artisan can easily set the value of N to be an integer equal to or above 4.

As can be seen, a skilled artisan will be able to determine the metes and bounds of the value N simply by following the language of the claim and without any undue experimentation. Therefore, the Examiner’s characterization of N as being theoretical is believed to be completely unreasonable.

Additionally, for example, paragraph [0030] of the laid-open publication of the instant Specification asserts:

“In the embodiment, the control object 5 has the 2-inertia system. In order to obtain the optimum command value, therefore, it is necessary to convert the given command into a command which is 4-rank differentiable. In order to correspond to the case in which a command cannot be differentiated (for example, a step command), **therefore, the filter order N is to be 4 or more. Description will be given to an example in which N is set to be 5 in order to smoothly give a command.**”

The above paragraph clearly notes a situation where N is required to be set to 4 or more. The above paragraph also leads to the portions of the Specification where another example is described where N is required to be set to 5 or more. For example, equation 6 of the Specification shows a transfer function where the order of the denominator of the transfer function is 5.

Likewise, several more cases are described in the Specification. It is clear that the value of N is not theoretical and, as the claim requires, the lower limit of the value of N varies depending on the situation and the type of transfer function and the command given.

Claim 3 requires L to be “an order of denominator of a transfer function of a approximation model that represent the controlled object with Laplace operator, and N is equal to or greater than a value defined by subtracting an order of the command from L”.

Paragraph 0052 of the laid-open publication of the instant Specification asserts:

**“Fig. 4 is different from Fig. 1 for explaining the first embodiment in only one portion.** A value subjected to an N-order filter processing is not obtained from a 1-rank differential to an (N-1)-rank differential but a value L is newly defined and is obtained from the 1-rank differential to an L-rank differential, and is input to an arithmetic unit 2. The value of the variable L is set to correspond to the order of a model from approximating a control object.”

As is clear from the above, L is set to be the order of the denominator of a transfer function of a approximation model that represent the controlled object with Laplace operator. A skilled artisan would know what the denominator of a transfer function of a approximation model that represent the controlled object with Laplace operator is.

More importantly, based on all of the above it is clear that N is not simply a theoretical value, but rather is a value set based on the specifics of the system under consideration. It is clear

that the value of N is not theoretical and as the claim requires the lower limit of the value of N varies depending on the situation. Specifically, it depends on the command given and the type of transfer function.

**Claim Rejections - 35 U.S.C. § 102**

Rejection of Claims 1-3, 5 and 6 as being anticipated by Yamamoto.

The Applicants respectfully submit that the claims require the transfer function of an approximate model that represents the control object with the Laplace operator. However, the transfer function that is disclosed in Yamamoto is the transfer function of the entire control system and not just the transfer function of the control object. It is very clear to a skilled artisan that the transfer function of just the control object as in the present invention is completely different from the transfer function of the entire control system as disclosed in Yamamoto.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP 2131 *citing Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Yamamoto does not disclose the present invention because it does not disclose at least the limitations related to the transfer function of the control object.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

/Chidambaram.S.Iyer/

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SUGHRUE MION, PLLC  
Telephone: (202) 293-7060  
Facsimile: (202) 293-7860

Chid S. Iyer  
Registration No. 43,355

WASHINGTON DC SUGHRUE/265550

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CUSTOMER NUMBER

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